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The Foundations of Neutrosophy

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Abstract

Neutrosophy emerges as a revolutionary branch of philosophy, offering a framework for understanding the origin, nature, and interactions of neutralities. It seeks to observe the sophisticated spaces between binaries, to interpret the uninterpretable, and to generalize classical ideas into broader, more encompassing principles. Through its methods, principles, and theses, neutrosophy confronts the pervasive indeterminacy of the world, reconsidering the nature of truth, falsity, and the vast spectrum of neutrality that lies between.

Keywords: Neutrosophy; Neutrality; Indeterminacy; Neutrosophic Logic; Duality; Complementarity; Paradox; Dialectics; Transdisciplinary Philosophy; Thesis; Antithesis; Neutrothesis; Neutrosynthesis.

1 | Introduction

Neutrosophy, a philosophical framework that I developed more than two decades ago [5, 6], explores the relationships and interactions between opposites and their neutralities/indeterminacies, seeking to find commonalities between them and identifying uncommon elements within similar entities, emphasizing the complexity and interconnectedness of concepts. Neutrosophy transcends traditional binary thinking by examining the interaction between opposites and the neutralities/indeterminacies between them. Neutrosophy challenges conventional modes of thought [1, 4] by proposing new philosophical principles and methods that recognize the limitations of classical systems. This mode of thinking is characterized by several key features. Let us review them.

2 | Reframing Old Concepts

Neutrosophy revisits traditional ideas, claiming that truths within one referential system may become falsehoods in another, and vice versa. This approach underscores the fluidity of knowledge, urging to view ideas from multiple angles.

By delving into the domains of paradox and ambiguity, Neutrosophy illuminates areas of thought previously deemed inaccessible or contradictory.

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Neutrosophy attempts to reconcile opposing ideas by uncovering the neutral spaces between them. It aims to "make peace in the war of ideas and make war in the peaceful ideas," [6, p. 16] emphasizing the dynamic nature of thought.

2.1 | Understanding Stability and Instability

By measuring the stability of unstable systems and the instability of stable systems, Neutrosophy offers tools to analyze and navigate systems marked by flux and uncertainty (see Figure 1).

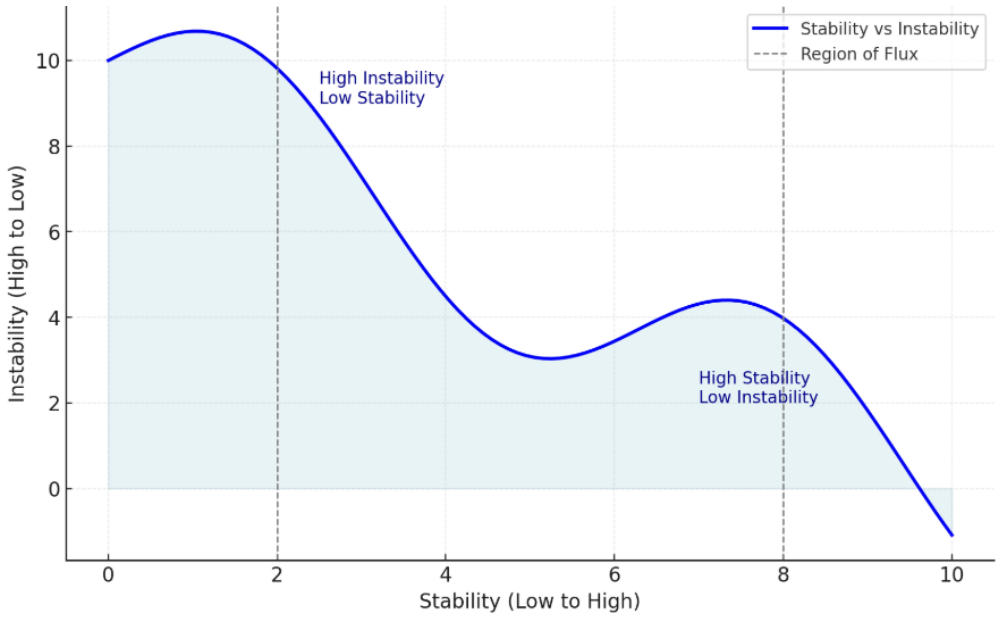

Figure 1. The relationship between stability and instability.

The x-axis represents stability (low to high).

The y-axis represents instability (high to low).

The curve showcases how instability decreases as stability increases, with regions of flux and uncertainty emphasized.

3 | Methods of Neutrosophic Study

Neutrosophy employs a rich array of methods, blending formal rigor with transdisciplinary approaches. These include:

- Mathematization: Incorporating concepts like neutrosophic logic, probability, and duality to quantify and model neutrality.
- Generalization and Complementarity: Extending classical notions to encompass a broader spectrum of possibilities and recognizing the interconnectedness of opposites.
- Contradiction and Paradox: Embracing the coexistence of opposing truths to uncover deeper insights.
- Transdisciplinarity: Applying neutrosophic principles across diverse fields, from physics and philosophy to psychology and literature.

4 | Formalization: Defining Neutralities

Neutrosophy formalizes its approach through a precise system of notation [5-7].

Let's denote by [A] an idea, or proposition, theory, event, concept, entity, by [Non-A] what is not [A], and by [Anti-A] the opposite of [A]. Also, [Neut-A] means what is neither [A] nor [Anti-A], i.e., neutrality in between the two extremes. And let [A'] be a version of [A].

Of course, [Non-A] is different from [Anti-A].

For example:

> If [A] = white, then [Anti-A] = black (antonym), but [Non-A] = green, red, blue, yellow, black, etc. (any color, except white), while [Neut-A] = green, red, blue, yellow, etc. (any color, except white and black), and [A'] = dark white, etc. (any shade of white).

In a classical way:

> [Neut-A] = [Neut-(Anti-A)], i.e., neutralities of [A] are identical with neutralities of [Anti-A].

Also:

> [Non-A] ⊃ [Anti-A], and [Non-A] ⊃ [Neut-A] as well.
>
> [A] ∩ [Anti-A] = ∅, [A] ∩ [Non-A] = ∅.
>
> [A], [Neut-A], and [Anti-A] are disjoint two by two.
>
> [Non-A] is the completeness of [A] with respect to the universal set.

But, since in many cases the borders between notions are vague, imprecise, it is possible that [A], [Neut-A], [Anti-A] (and [Non-A] of course) have common parts two by two.

5 | Principles and Laws of Neutrosophy

In this paper, I have introduced the result of using the LSTM model for price prediction and proved that LSTM is the best model to make stock price predictions and that using the deep learning model is better than another model using the APPL.

5.1 | Continuum of Neutralities

Between any idea and its opposite lies an infinite spectrum of neutralities, reflecting the gradations and transitions that characterize real-world phenomena.

5.2 | Referential Relativity

The truth, falsity, and indeterminacy of any proposition depend on the referential system in which it is examined. In one system, a proposition may appear true; in another, false; and in yet another, indeterminate.

5.3 | Equilibrium of Ideas

Every idea naturally tends toward equilibrium, balanced not only by opposing ideas but also by the neutral ideas between them. (This principle expands Hegel's dialectical synthesis by recognizing the role of neutralities [2, 3])

6 | Thesis-Antithesis-Neutrothesis, and Neutrosynthesis

In neutrosophy, [A], [antiA], and [neutA] combined two by two, and also all three of them together form the NeutroSynthesis. Neutrosophy establishes the universal relations between [A], [antiA], and [neutA].

[A] is the thesis, [antiA] the antithesis, and [neutA] the neutrothesis (neither [A] nor [antiA], but the neutrality in between them).

In the neutrosophic notation, [nonA] (not [A], outside of [A]) is the union of [antiA] and [neutA].

[neutA] may be from no middle (excluded middle), to one middle (included middle), to many finite discrete middles (finite multiple included-middles), and to an infinitude of discrete or continuous middles (infinite multiple included- middles) [e.g., as in color for the last one, let's say between black and white there is an infinite spectrum of middle/intermediate colors].

6.1 | Thesis, Antithesis, Synthesis

Neutrosophy is a generalization of dialectics (which is based on contradictions only, [A] and [antiA]), because neutrosophy is based on contradictions and on the neutralities between them ([A], [antiA], and [neutA]).

Therefore, the dialectical triad thesis-antithesis-synthesis[1] is extended to the neutrosophic tetrad thesis-antithesis-neutrothesis-neutrosynthesis. I do this not for the sake of generalization, but for better reflecting our world. A neutrosophic synthesis (neutrosynthesis) is more refined that the dialectical synthesis. It carries on the unification and synthesis regarding the opposites and their neutrals too.

6.2 | Neutrosophic Dynamicity

I have extended the Principle of Dynamic Opposition [opposition between [A] and [antiA] to the Principle of Dynamic Neutropposition – which means oppositions among [A], [antiA], and [neutA]. Etymologically "neutropposition" means "neutrosophic opposition" [7].

This reasoning style is not a neutrosophic scheme, but it is based on reality, because if an idea (or notion) [A] arises, then multiple versions of this idea are spread out, let's denote them by $[A]_1$, $[A]_2$, …, $[A]_m$. Afterwards, the opposites (in a smaller or higher degree) ideas are born, as reactions to [A] and its versions $[A]_i$. Let's denote these versions of opposites by $[antiA]_1$, $[antiA]_2$, …, $[antiA]_n$. The neutrality [neutA] between these contradictories ideas may embrace various forms, let's denote them by $[neutA]_1$, $[neutA]_2$, …, $[neutA]_p$, where m, n, p are integers greater than or equal to 1.

In general, for each [A] there may be corresponding many [antiA]'s and many [neutA]'s. Also, each [A] may be interpreted in many different versions of [A]'s too.

Neutrosophic Dynamicity means the interactions among all these multi-versions of [A]'s with their multi-[antiA]'s and their multi-[neutA]'s, which will result in a new thesis, let's call it [A'] at a superior level. And a new cycle of [A'], [antiA'], and [neutA'] restarts its neutrosophic dynamicity.

6.3 | Practical Example

Consider a scenario where [A] represents a country engaged in war with another country, which we can label [antiA] due to its antagonistic stance against [A]. Meanwhile, a group of neutral countries, referred to as [neutA], may intervene in the conflict, either by supporting or opposing one of the warring parties to varying extents.

Some of these neutral countries ([neutA]) might remain entirely neutral throughout the war. However, there is an ongoing interplay among the three groups—[A], [antiA], and [neutA]—as countries may switch allegiances (moving from one coalition to another) or withdraw from any coalition altogether.

This simplified example highlights the often-overlooked role of [neutA] in the conflict between opposing forces, [A] and [antiA], a role that traditional dialectical frameworks fail to address. As a result, the dialectical

[1] The classical reasoning development about evidences, popularly known as thesis-antithesis-synthesis from dialectics, is attributed to the philosopher Georg Wilhelm Friedrich Hegel (1770-1831) and later it was used by Karl Marx (1818-1883) and Friedrich Engels (1820-1895). About thesis and antithesis have also written Immanuel Kant (1724-1804), Johann Gottlieb Fichte (1762-1814), and Thomas Schelling (born 1921). While in ancient Chinese philosophy the opposites *yin* [feminine, the moon] and *yang* [masculine, the sun] were considered complementary.

synthesis is expanded into a broader concept known as neutrosynthesis, a neutrosophic approach that integrates thesis, antithesis, and neutrothesis.

6.4 | Theoretical Example

Imagine [A] as a philosophical school, with [antiA] representing its opposing school of thought. In the debate between [A] and [antiA], philosophers from both conflicting sides may draw upon ideas from various neutral philosophical schools ([neutA])—schools that are neither aligned with [A] nor with [antiA]—to strengthen their arguments against the opposing view.

7 | Applications of Neutrosophy

Neutrosophy's principles find resonance across multiple disciplines. Let us pick some of them.

7.1 | Quantum Mechanics

The uncertainty inherent in quantum systems aligns with the neutrosophic view. Instead of seeking deterministic probabilities, neutrosophy allows us to model quantum states as a blend of truth, falsity, and indeterminacy, capturing the ambiguous nature of phenomena like superposition.

7.2 | Artificial Intelligence

Neutrosophic logic enhances AI by enabling systems to reason with incomplete, contradictory, or uncertain information, improving decision-making processes and adaptability.

7.3 | Philosophy and Sociology

By exploring the interplay of ideas and their opposites, Neutrosophy fosters dialogue and understanding in fields where competing ideologies often clash.

7.4 | Literature and Art

Neutrosophy offers tools to interpret the layers of meaning in creative works, where ambiguity and paradox are often central themes.

8 | Conclusion: Toward a Philosophy of Balance

Neutrosophy represents not just a theoretical framework but a movement that redefines how we approach knowledge and understanding. It invites us to embrace ambiguity, to explore the spaces between extremes, and to recognize the interplay of opposites and neutralities. By formalizing and extending classical ideas, neutrosophy provides a lens through which to reinterpret the complexities of the world. In a world marked by indeterminacy, neutrosophy offers a path forward. It challenges us to transcend binary thinking, to explore the continuum of possibilities between extremes, and to seek balance in the face of complexity. Neutrosophy is not merely a study of neutrality but a call to action—a call to rethink, reinterpret, and redefine our understanding of truth, falsity, and the vast spectrum of neutrality in between.

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Data Availability

The datasets generated during and/or analyzed during the current study are not publicly available due to the privacy-preserving nature of the data but are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that there is no conflict of interest in the research.

Ethical Approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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